

Claims:

1. An organic silicone copolymer or hydrolysis product thereof, obtainable by polymerizing
- 5 a1) $\geq 50\%$ by weight of one or more monomers from the group consisting of vinyl esters of branched and unbranched alkyl carboxylic acids having from 1 to 15 carbon atoms and
- 10 a2) from 0 to 20% by weight of one or more monomers from the group consisting of monounsaturated olefins and also dienes and
- b) from 1 to 50% by weight of one or more silicones with the general formula $R^1_a R_{3-a} SiO(SiR_2O)_n SiR_{3-a} R^1_a$, in which each R is
- 15 identical or different, and a monovalent, unsubstituted or substituted alkyl radical or alkoxy radical having in each case from 1 to 18 carbon atoms, R^1 is a polymerizable group, a is 0 or 1, and $n = 10$ to 1000,
- 20 from 85 to 100% by weight of the silicones b) containing from one to two polymerizable groups, with silicones b) having only one polymerizable group being used only in a mixture with silicones b) having two polymerizable groups and in a weight
- 25 ratio $\leq 50/50$, and
- c) from 0 to 10% by weight of one or more hydrolyzable silane monomers from the group consisting of ethylenically unsaturated hydrolyzable silicon compounds and hydrolyzable silicon
- 30 compounds from the group of the mercaptosilanes, the amounts in % by weight for components a) to c) being based in each case on the overall weight of the monomers used and adding up to 100% by weight, in a nonaqueous solvent in the presence of free-
- 35 radical initiators,
- characterized in that it comprises using as nonaqueous solvent a mixture of at least two nonaqueous solvents of which at least one has a

transfer constant C_s to vinyl acetate of $> 20 \times 10^{-4}$ at 70°C ,
and, where appropriate, hydrolyzing the product thus obtainable.

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2. The copolymer or hydrolysis product thereof as claimed in claim 1, having a complex melt viscosity of from 5 to 30,000 Pas and a phase angle δ of $\geq 45^\circ$, in each case in the range from 100°C to 140°C.
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3. The copolymer or hydrolysis product thereof as claimed in claim 1 or 2, characterized in that use is made as silicone b) of one or more
- 15 silicones from the group consisting of α,ω -divinyl-polydimethylsiloxanes, α,ω -di(3-acryloyloxypropyl)-polydimethylsiloxanes, α,ω -di(3-methacryloyloxypropyl)-polydimethylsiloxanes, α -monovinyl-polydimethylsiloxanes, α -mono(3-acryloyloxypropyl)-polydimethylsiloxanes, α -mono(acryloyloxymethyl)-polydimethylsiloxanes, and α -mono(3-methacryloyloxypropyl)-polydimethylsiloxanes.
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4. The copolymer or hydrolysis product thereof as claimed in any of claims 1 to 3, characterized in that use is made as silicone b) of α,ω -divinyl-polydimethylsiloxanes or of a binary mixture of α,ω -divinyl-polydimethylsiloxanes with α -monovinyl-polydimethylsiloxanes, or of a ternary mixture of α,ω -divinyl-polydimethylsiloxanes, α -monovinyl-polydimethylsiloxanes, and unfunctionalized polydimethylsiloxanes.
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5. The copolymer or hydrolysis product thereof as claimed in claim 4, characterized in that, in the case of the binary or ternary mixtures, the fraction of the unfunctional polydialkylsiloxanes
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is up to 15% by weight, the fraction of the monofunctional polydialkylsiloxanes is up to 50% by weight, and the fraction of the difunctional polydialkylsiloxanes is at least 50% by weight, based in each case on the overall weight of the silicone fraction b).

6. The copolymer or hydrolysis product thereof as claimed in any of claims 1 to 5, characterized in that use is made as hydrolyzable silane monomers c) of ethylenically unsaturated and hence copolymerizable silicon compounds of the general formula $R^3SiR^{2_{0-2}}(OR^4)_{1-3}$, in which R^2 has the definition C_1 to C_3 alkyl radical, C_1 to C_3 alkoxy radical or halogen, R^3 has the definition $CH_2=CR^3-(CH_2)_{0-1}$ or $CH_2=CR^5CO_2(CH_2)_{1-3}$, R^4 is a branched or unbranched, unsubstituted or substituted alkyl radical having from 1 to 12 carbon atoms or is an acyl radical having from 2 to 12 carbon atoms, it being possible for R^4 , where appropriate, to be interrupted by an ether group, and R^5 stands for H or CH_3 .

7. The copolymer or hydrolysis product thereof as claimed in any of claims 1 to 6, characterized in that use is made as monomers a) of vinyl acetate, or vinyl acetate and ethylene, or vinyl acetate and vinyl esters of α -branched monocarboxylic acids having 9 or 10 carbon atoms, or vinyl acetate, ethylene, and vinyl esters of α -branched monocarboxylic acids having 9 or 10 carbon atoms, and as silicone b) of a binary mixture of α,ω -divinyl-polydimethylsiloxane with α -monovinyl-polydimethylsiloxane or a ternary mixture of α,ω -divinyl-polydimethylsiloxane, α -monovinyl-polydimethylsiloxane, and unfunctionalized polydimethylsiloxane.

8. The copolymer or hydrolysis product thereof as claimed in any of claims 1 to 7, characterized in that the solvent mixture comprises one or more solvents selected from the group consisting of tetrahydrofuran, chloroform, heptane, cyclohexane, petroleum ether, diethyl ether, methyl ethyl ketone, p-dioxane, ethyl acetate, methyl acetate, isopropanol, ethanol, methanol, t-butanol, acetone, toluene, and benzene.
9. The copolymer or hydrolysis product thereof as claimed in any of claims 1 to 8, characterized in that the fraction of solvent with $C_s > 20 \times 10^{-4}$ in the solvent mixture is from 3 to 50% by weight.
10. The copolymer or hydrolysis product thereof as claimed in any of claims 1 to 9, characterized in that the solvent mixture comprises ethanol and/or isopropanol.
11. The copolymer or hydrolysis product thereof as claimed in any of claims 1 to 10, characterized in that a solvent mixture of ethyl acetate and isopropanol is used.
12. A process for preparing an organic silicone copolymer or hydrolysis product thereof by polymerizing
- a1) $\geq 50\%$ by weight of one or more monomers from the group consisting of vinyl esters of branched and unbranched alkyl carboxylic acids having from 1 to 15 carbon atoms and
- a2) from 0 to 20% by weight of one or more monomers from the group consisting of monounsaturated olefins and also dienes and
- b) from 1 to 50% by weight of one or more silicones with the general formula $R^1_a R_{3-a} SiO(SiR_2O)_n SiR_{3-a} R^1_a$, in which each R is

identical or different, and a monovalent, unsubstituted or substituted alkyl radical or alkoxy radical having in each case from 1 to 18 carbon atoms, R^1 is a polymerizable group, a is 0 or 1, and $n = 10$ to 1000, from 85 to 100% by weight of the silicones b) containing from one to two polymerizable groups, with silicones b) having only one polymerizable group being used only in a mixture with silicones b) having two polymerizable groups and in a weight ratio $\leq 50/50$, and c) from 0 to 10% by weight of one or more hydrolyzable silane monomers from the group consisting of ethylenically unsaturated hydrolyzable silicon compounds and hydrolyzable silicon compounds from the group of the mercaptosilanes, the amounts in % by weight for components a) to c) being based in each case on the overall weight of the monomers used and adding up to 100% by weight, in a nonaqueous solvent in the presence of free-radical initiators, characterized in that it comprises using as nonaqueous solvent a mixture of at least two nonaqueous solvents of which at least one has a transfer constant C_s to vinyl acetate of $> 20 \times 10^{-4}$ at 70°C , and, where appropriate, hydrolyzing the product thus obtainable.

13. The process as claimed in claim 12, characterized in that from 3 to 40% by weight of a mixture of the monomers a), b), and, where appropriate, c) in the desired proportions is introduced as the initial charge and the remainder of the monomers a), b), and, where appropriate, c) is metered in as a mixture.

14. The process as claimed in claim 12 or 13,
characterized in that the resulting organic
silicone copolymer is hydrolyzed in alcoholic
solution in the presence of acidic or alkaline
catalysts.
15. The use of an organic silicone copolymer or
hydrolysis product thereof from any of claims 1 to
11 as release agents and coating materials for
producing adhesive coatings.
16. The use of an organic silicone copolymer or
hydrolysis product thereof from any of claims 1 to
11 as coating materials for coating textile,
paper, wood, films, and metals.
17. The use of an organic silicone copolymer or
hydrolysis product thereof from any of claims 1 to
11 in architectural preservation for producing
weathering-resistant coatings or sealants.
18. The use of an organic silicone copolymer or
hydrolysis product thereof from any of claims 1 to
11 as modifiers and water repellents.
19. The use of an organic silicone copolymer or
hydrolysis product thereof from any of claims 1 to
11 as an additive for cosmetics.
20. The use of an organic silicone copolymer or
hydrolysis product thereof from any of claims 1 to
11 as an additive in the polish sector.
21. The use of an organic silicone copolymer or
hydrolysis product thereof from any of claims 1 to
11 as an additive for antifoam formulations.

22. The use of an organic silicone copolymer or hydrolysis product thereof from any of claims 1 to 11 for textile treatment.
- 5 23. The use of an organic silicone copolymer or hydrolysis product thereof from any of claims 1 to 11 as an additive in the construction sector for cementitious and noncementitious systems.